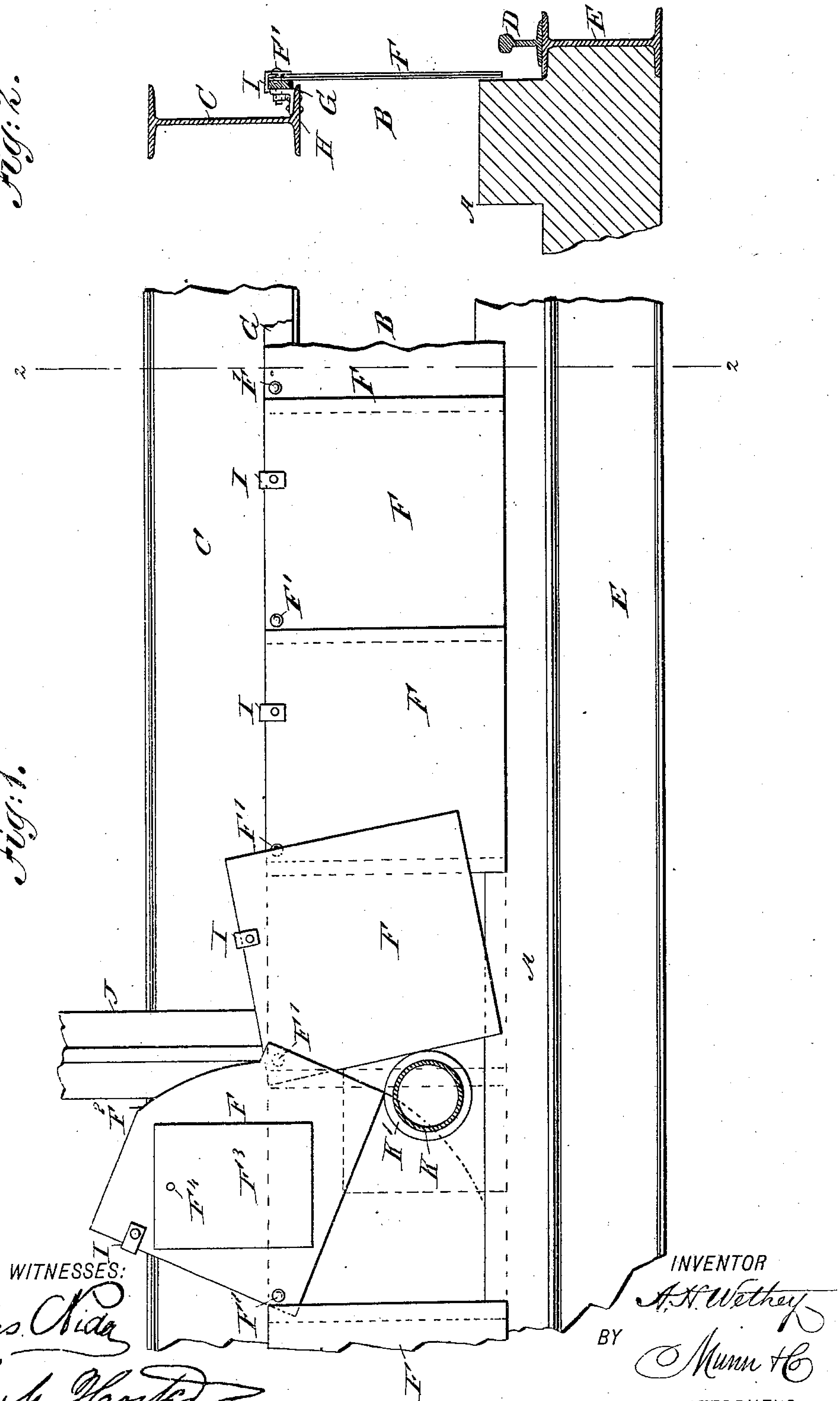
(No Model.)

A. H. WETHEY.

TRIPPING DOOR FOR CALCINING FURNACES.

No. 565,312. Patented Aug. 4, 1896.



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ARTHUR HARVEY WETHEY, OF BUTTE, MONTANA.

TRIPPING DOOR FOR CALCINING-FURNACES.

SPECIFICATION forming part of Letters Patent No. 565,312, dated August 4, 1896.

Application filed February 15, 1895. Serial No. 538,507. (No model.)

To all whom it may concern:

Be it known that I, ARTHUR HARVEY WETHEY, of Butte, in the county of Silver Bow and State of Montana, have invented new and useful Improvements in Tripping Doors for Calcining-Furnaces, of which the following is a full, clear, and exact description.

The object of the invention is to provide certain new and useful improvements in tripping doors for calcining-furnaces to close the slots on the inner sides of the furnace, the said doors being self-closing and normally in a closed position, and opened successively by the stirring device as the latter passes through the hearth or compartment of the furnace.

The invention consists principally of a series of overlapping doors pivoted at their upper ends and adapted to be engaged edgewise by the axle or other part of the stirring device to cause an upward swinging of the door for the passage of the axle.

The invention consists of certain parts and details and combinations of the same, as will be fully described hereinafter, and then pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar letters of reference indicate corresponding parts in both the figures.

Figure 1 is a side elevation of the improvement as applied, with the axle of the stirring device in section; and Fig. 2 is a transverse section of the same on the line 2 2 of Fig. 1.

The calcining-furnace on which the improvement is applied is formed with a series of compartments or hearths A, located one above the other and each formed at its inside with a slot B, as is more fully described in the application above referred to. Through this slot B passes the axle of the stirring device traveling through the compartment or hearth to stir and move the contents thereof, and in order to prevent air from passing through the slot to the interior of the hearth from the outside a series of tripping doors are provided, as hereinafter more fully described, to normally close the said slot and to permit the stirring device to open the doors successively as it passes into and through the compartments.

The slot B of each hearth or compartment A has its top formed by an I-beam C, and in front of the slot and a suitable distance from the side wall of the furnace is placed a rail D, on which travel the wheels of the carriage carrying the stirring device. This rail D is supported on a lower I-beam E, which, like the I-beam C, forms part of the structure of the furnace.

The slot B is closed at its outer side by a series of doors F, located one alongside the other, and one overlapping the other at the adjacent sides, as is plainly indicated in Fig. 1. The doors F are made of light sheet-steel, either single or double, with asbestos between the sheets to prevent warping from the heat of the hearth. Other suitable material, however, may be employed.

Each of the doors F, as shown in Fig. 1, is made rectangular in shape, and its upper left corner is hung on a pivot F′, secured on a longitudinally-extending rail G, supported by small brackets H from the base of the I-beam C, as is plainly shown in Fig. 2. Each of the doors F is provided at the top with a hook I, adapted to hook onto the top edge of the rail G, so as to support the door F in a closed position, as illustrated in Fig. 1.

The door F, near the bracket J, which forms part of the structure of the furnace, is formed at its lower forward corner with a cut-out portion F^2, so as to swing clear of the projecting web of the bracket J, as indicated in Fig. 1. In order to close the opening left by this cut-out portion when this door F is closed or in a lowermost position, I provide an auxiliary door F^3, pivoted at F^4 on said door F, so that when the latter swings downward the auxiliary door F^3 swings over the cut-out portion, and consequently closes the opening left, to prevent air from passing to the interior of the hearth or compartment, as will be readily understood by reference to dotted lines in Fig. 1.

The carriage traveling on the rail D supports an axle K, made in the shape of a hollow tube, the said axle carrying the plows or stirrers within the hearth or compartment A to stir and move the contents thereof as the carriage moves forward. The axle K projects through the slot B to the inside of the hearth, and as the carriage moves forward the axle comes in contact edgewise with the doors

F at their side containing the pivot F′, so that the doors F are swung upward on the forward movement of the axle, and as soon as the latter has passed the lower left-hand corner of a door then the door swings downward by its own gravity to again close that part of the slot B.

In order to prevent the doors from wearing on the axle K, I provide the latter with a ring or collar K′ in alinement with the edges of the doors, so that the latter come in contact with the collar, and when the latter is worn out it can be replaced without injury to the axle.

It will be seen that by the arrangement described the doors are successively opened and closed by the forwardly-moving axle K, so that comparatively little air can pass through the slot B into the compartment or hearth A.

Having thus fully described my invention, I claim as new and desire to secure by Letters Patent—

1. A tripping door for calcining-furnaces, provided with a door pivoted at one upper corner and having the diametrically opposite corner rounded off or cut out, and an auxiliary door pivoted on one face of the said door, and adapted to swing over the cut-out portion or rounded-off corner of the main door, substantially as shown and described.

2. The combination of the longitudinally-supported rail carrying pivots, a series of doors hung with one upper corner on one side of the said pivots, the said doors overlapping one on the other, and a hook held on the upper edge of each door, and adapted to engage the said rail to support the door in a normally-closed position, substantially as shown and described.

3. The combination with the rail and the pivots of the overlapping doors on the pivots and arranged to automatically return to their normal position, and a catch held on each door and arranged to engage the said rail to hold the door in its normal position, substantially as described.

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Witnesses:
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